ABSTRACT

Methods and apparatus are provided for a fail-operational global time reference for a synchronous redundant data bus including multiple pluralities of timing servers cross-coupled between a plurality of buses in said redundant synchronous data bus system, the apparatus comprising each said timing server of the multiple pluralities of timing servers configured to transmit, receive, and monitor synchronization signals, to store a unique constant, and to independently and automatically select as timing master one or more timing servers from among the multiple pluralities of timing servers based on said synchronization signals received from one or more of said timing servers of said multiple pluralities of timing servers and further based upon a relationship among said unique constants stored in each timing server. Methods comprising selection protocols are also provided.